

CHAPTER 7

COMBAT SUPPORT

A scout platoon must take full advantage of available CS assets to accomplish its mission and to reduce its vulnerability on the battlefield. CS may be provided by mortars, field artillery (FA), ADA, combat engineers, GSR, and aviation assets. None of these assets are organic to the scout platoon, but they may be available through its parent battalion or cavalry troop. Scouts must understand the capabilities and limitations of the CS assets.

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Section I. INDIRECT FIRE SUPPORT

Mortars and FA are the primary means of indirect fire support available to scout platoons. FSOs at troop and battalion/squadron levels plan and coordinate indirect fires. In addition to understanding the capabilities and limitations of these assets, scouts must know what fire request channels to use to request fires. FM 6-30 explains how to call for and adjust fires.

MORTAR SUPPORT

A 4.2-inch mortar platoon of six tubes is organic to armor and mechanized infantry battalions. A 4.2-inch mortar section is organic to the armored cavalry

troop (two tubes) and divisional cavalry troop (three tubes). The 4.2-inch mortar has a maximum effective range of 6,740 meters.

Mortars provide indirect fire support that is immediately responsive to the scouts' needs. They can provide a heavy volume of accurate, sustained fires. They are ideal weapons for attacking targets on reverse slopes, in narrow ravines or trenches, and in forests, towns, and other areas that are difficult to strike with low-angle fires. Mortars are most effective for—

- **Suppression.** High-explosive (HE) rounds can be used to force the enemy to button up or move to less advantageous positions. Unless a direct hit is achieved, however, HE mortar rounds will not destroy armored vehicles.
- **Smoke.** White phosphorus rounds are used for obscuration and screening. Mortar smoke builds up more rapidly than artillery smoke. Obscuration is achieved by placing smoke on or just in front of enemy positions to obscure their vision. Screening is achieved by placing smoke between the enemy and the scout platoon position to conceal movement. Mortar smoke can also be used to mark enemy positions to enhance friendly maneuver and orient direct fires. Scouts must be careful, however, not to allow smoke to work against them by marking their own positions for enemy gunners.
- **Illumination.** Illumination rounds are used to light an area or enemy position during periods of limited visibility. Scouts can increase the effectiveness of their image intensification devices by using illumination. This helps them gather information, adjust artillery, or engage enemy targets. Ground-burst illumination can also be used to mark enemy positions and to provide a thermal target reference point (TRP) for control of fires. As with smoke, illumination is a double-edged sword; care must be taken not to illuminate friendly positions. Also, because US night-vision devices are superior to those of most potential adversaries, illuminating the battlefield may be unnecessary or even counterproductive.

Mortars are limited because—

- They have only short-range capability.
- Only limited types of ammunition are available.

- Mortar elements can carry only limited amounts of ammunition.
- Their fire direction center (FDC) and tubes are not linked to the tactical fire direction system (TACFIRE).

Mortar capabilities include—

- A close working relationship with scouts.
- Fast response time.
- Availability for low-density targets.
- The destructive target effects of the 107-mm mortar round.

FIELD ARTILLERY

Scouts must fully understand how to use artillery support to their best advantage. It is often their primary means of impeding and disrupting enemy formations and suppressing enemy positions. FA can provide immediate, responsive, accurate fires with a wide variety of munitions.

FA support is normally provided by an artillery battalion in direct support (DS) of a committed maneuver brigade or an armored cavalry regiment (ACR) or squadron. The armored cavalry squadron also has its organic howitzer battery to provide dedicated indirect fire support. Scouts generally receive FA support through the FSO.

Capabilities

In support of the scout platoon, FA elements can—

- Provide fire support in all weather conditions and types of terrain.
- Shift and mass fires rapidly.
- Support the battle in depth with long-range fires.
- Provide a variety of conventional shell and fuze combinations.
- Provide continuous fire support by careful positioning and timely displacement.
- Be as mobile as the supported unit.

Limitations

FA support has the following limitations:

- Limited capability against moving targets.
- Limited capability to destroy point targets without considerable ammunition expenditure.
- Vulnerability to detection by enemy target acquisition systems because of its firing signature.

Available Munitions

FA employs a wide variety of munitions that can be tailored for the engagement of different types of targets. These ammunition types include—

- HE, for use against personnel, field fortifications, and vehicles.
- Smoke, for obscurity and screening.
- Illumination.
- White phosphorus, for obscurity and burning.
- Chemical, for use against troops and for area denial.
- Nuclear.
- Cannon-launched guided projectiles (Copperhead), for use against armored vehicles.
- Improved conventional munitions (ICM), for antipersonnel (AP) use, and DPICM, for use against personnel and light armored vehicles in the open. The danger to friendly troops in areas where AP munitions are fired must be considered. The high dud rate of ICM makes maneuver in the area of an ICM field hazardous.
- Family of scatterable mines (FASCAM). These include area denial munitions for use against personnel and remote antiarmor mines for use against armored vehicles. It takes a dedicated FA battery to fire a FASCAM mission. The mission requires slightly more lead time than other FA-delivered munitions.

THE FIRE SUPPORT TEAM

A fire support team (FIST) is attached to companies or troops for combat operations; it may be pushed forward with the scout platoon in support of security operations when on-target designation is required for special munitions engagements. However, the FIST is a valuable resource because of its command and control link with the artillery; it should not be exposed to direct fire except when absolutely necessary. A FIST is organized, equipped, and trained to provide—

- A fire support advisor and coordinator.
- A communications link to all available fire support.
- On-the-spot support for infantry companies (10-man team) or for armor companies and cavalry troops (4-man team).

The armor/mechanized infantry FIST normally monitors these four radio nets:

- Attached unit command net (battalion, company, or scout platoon).
- Battalion mortar fire direction net.
- DS battalion fire direction net (digital).
- Battalion fire support net (voice).

The armored cavalry troop FIST monitors these four radio nets:

- Troop command net.
- Troop fire support net.
- Supporting artillery fire direction net (digital and voice).
- Squadron fire support net.

The FIST serves as the net control station (NCS) on the troop fire support net. The FSE serves as the NCS on the maneuver battalion fire support net. The FIST relays the call for fire to supporting artillery on a digital net (TACFIRE) or sends the fire mission to the mortar platoon or section. The command net allows the FIST to monitor operations and links the FIST to the commander and platoon leaders for planning and coordination.

FIRE REQUEST CHANNELS

Battalion Scout Platoon

There are several ways the scouts can request indirect fire. The battalion task force SOP should specify which method they will use. The scout platoon leader must coordinate with the battalion FSO/FSE on which of the methods described in the following paragraphs will be used.

The platoon can send requests for mortar fire directly to the mortars on the battalion heavy mortar net; the FSE monitors the requests (see Figure 7-1).

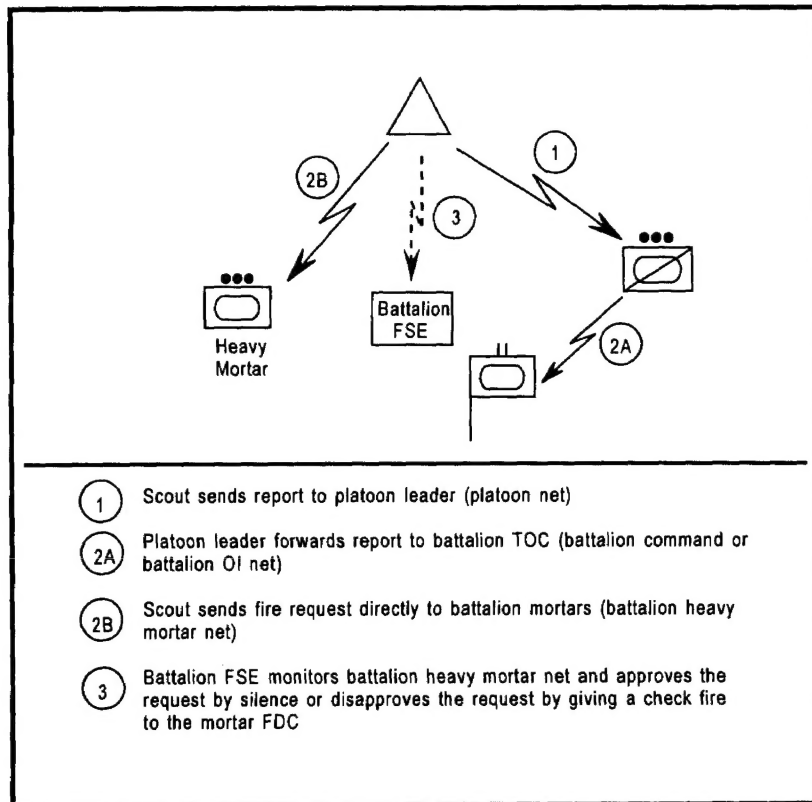


Figure 7-1. Battalion scouts request fire from battalion mortars.

The platoon can send requests for artillery fire directly to the FA battalion on a fire direction net; the FSE monitors the requests (see Figure 7-2).

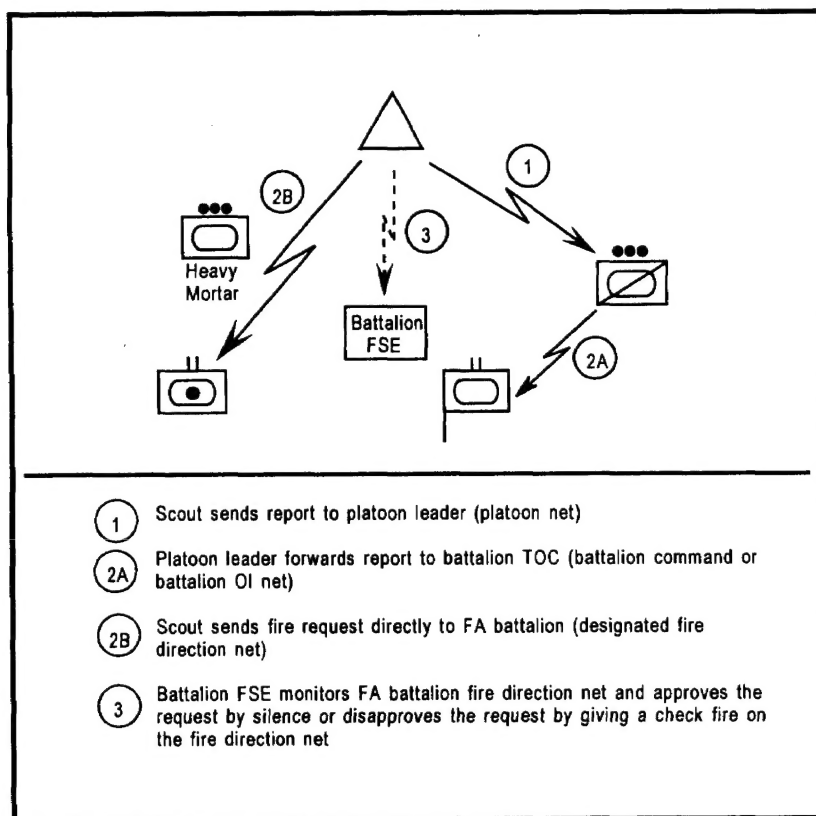


Figure 7-2. Battalion scouts request fire from FA battalion.

Requests for indirect fire can also be sent through the COLT, which has a secondary mission of processing these requests for the scouts. The COLT monitors the scout platoon net and handles the fire request and subsequent adjustments as a normal FIST. It has the primary mission of lasing targets for Copperhead rounds and close air support (CAS). It can enter the lasing information directly into TACFIRE channels. A COLT is organic to each of the three DS 155-mm FA battalions of the armor or mechanized infantry and to the howitzer battery of the armored cavalry squadron. The cavalry squadron has one organic COLT. From company/troop to brigade level, a COLT is placed under

the control of a fire support coordinator to augment the lasing capability of the FIST and to function as a dedicated observation platform (see Figure 7-3). When pushed forward with the scouts, the COLT should collocate with one of the scout platoon OPs for local security and protection.

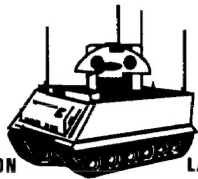
COMBAT OBSERVATION  LASING TEAM			
UNIT	PERSONNEL		
	Number	Rank	Title
Mechanized Infantry/Armored Division	1	E5	Fire Support Sergeant
	1	E4	Fire Support Specialist
	1	E3	Fire Support Specialist
	EQUIPMENT		
	Number	Item	
	1	Full-tracked personnel carrier (FIST vehicle)	
	1	Radio set AN/GRC-160	
	1	Radio set AN/VRC-46	
	1	Digital message device	

Figure 7-3. Combat observation lasing team.

Cavalry Scout Platoon

The scouts in an armored cavalry troop normally request all indirect fire support through their troop FIST on the troop fire support net. The FIST selects the best available fire support to engage the target. If the FIST passes the fire mission to the troop mortars, the scouts send all adjustments of the fire mission directly to the mortars (see Figure 7-4). If the FIST passes the fire mission to a supporting artillery unit, the scouts send all adjustments of the fire mission to the FIST. The FIST relays the message to the artillery unit on a digital fire direction net (see Figure 7-5).

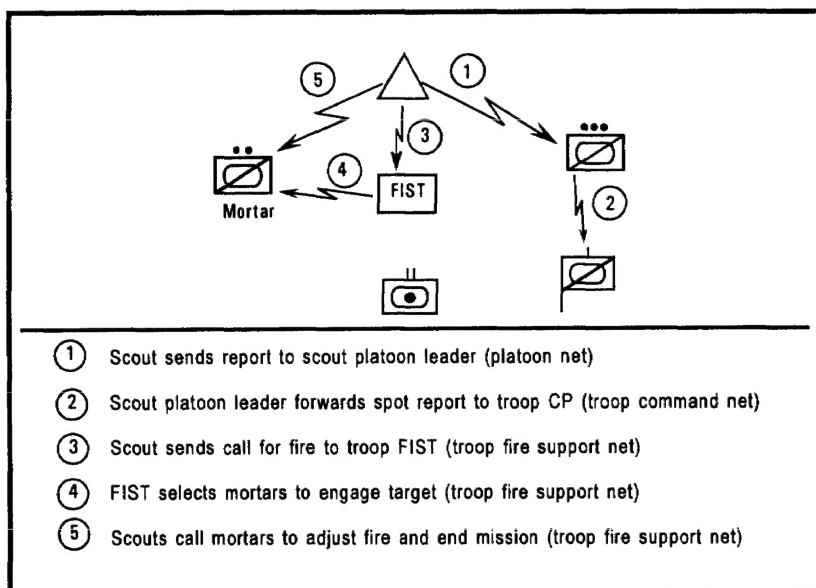


Figure 7-4. Cavalry scouts request fire from mortars.

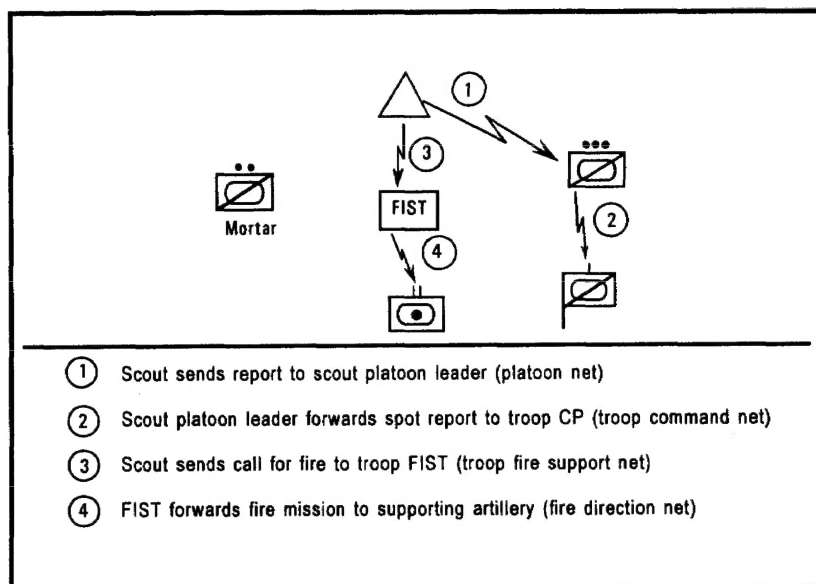


Figure 7-5. Cavalry scouts request fire from artillery.

CALL FOR FIRE

Initial Call for Fire

The standard call for fire consists of three basic transmissions consisting of six elements: observer identification and warning order (first transmission); target location (second transmission); and description of target, method of engagement, and method of fire and control (third transmission).

Observer identification and warning order (first transmission). The observer identification tells the FDC who is calling. It also clears the net for the rest of the call. The warning order tells the FDC the type of mission and the method of locating the target. The types of missions are—

- Adjust fire. This is used when the observer is uncertain of the exact target location. The observer says, “ADJUST FIRE.”
- Fire for effect. The observer should always try first-round fire for effect if he is sure that his target location is correct. He should also be sure that the rounds of the first volley will have the desired effect on the target so that little or no adjustment will be required. The observer says, “FIRE FOR EFFECT.”
- Suppress. The word “SUPPRESS” is used to quickly bring fire on a preplanned target only. This is a simplified call for fire and is sent in one transmission. Example: “G24—THIS IS G59—SUPPRESS AF2401—OVER.” Target description is not announced.
- Immediate suppression. This is used to bring fire quickly on a planned target or a target of opportunity that is firing at a friendly unit or aircraft. The observer says, “G24—THIS IS G57—IMMEDIATE SUPPRESSION AF2402—OVER.” Target description is not announced.

Target location (second transmission). Following the type of mission, the method of target location is announced; this prepares the FDC to receive the data sent by the observer and apply it to locate the target. The three methods for locating targets are grid, polar, and shift from a known point. Only the polar and shift methods are announced to the FDC. If the observer does not specify either polar or shift, the FDC knows the grid method is being used; the word “grid” is not announced. Example: “H24—THIS IS H67—FIRE FOR EFFECT—POLAR-OVER.”

When using the grid method, the target location is normally sent in six digits (example: "180739"). The direction from the observer to the target (in mils, if possible) must be given to the FDC after the call for fire, but before the first adjusting rounds are shot.

The polar-plot method requires that the observer and the FDC know the observer's exact location. The observer determines the direction (to the nearest 10 mils) of the observer-target (OT) line and the distance (to the nearest 100 meters) from his position to the target (see Figure 7-6).

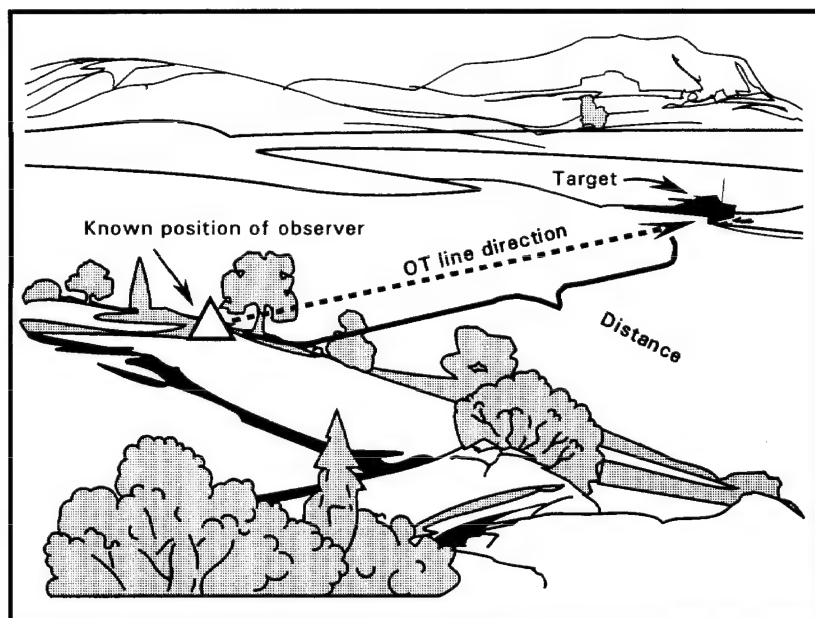


Figure 7-6. Polar plot.

The shift-from-a-known-point method can be used if the observer and the FDC have a common known point (see [Figure 7-7](#), page 7-12). This point must have been previously established as an artillery target. To locate the target, the observer must first determine the direction to the nearest 10 mils. If the observer has no compass, he can determine the direction by using a map and protractor or by using his binocular reticle pattern and a known direction to the known point. He should remember to apply the RALS rule (right add, left subtract) in determining direction to the target.

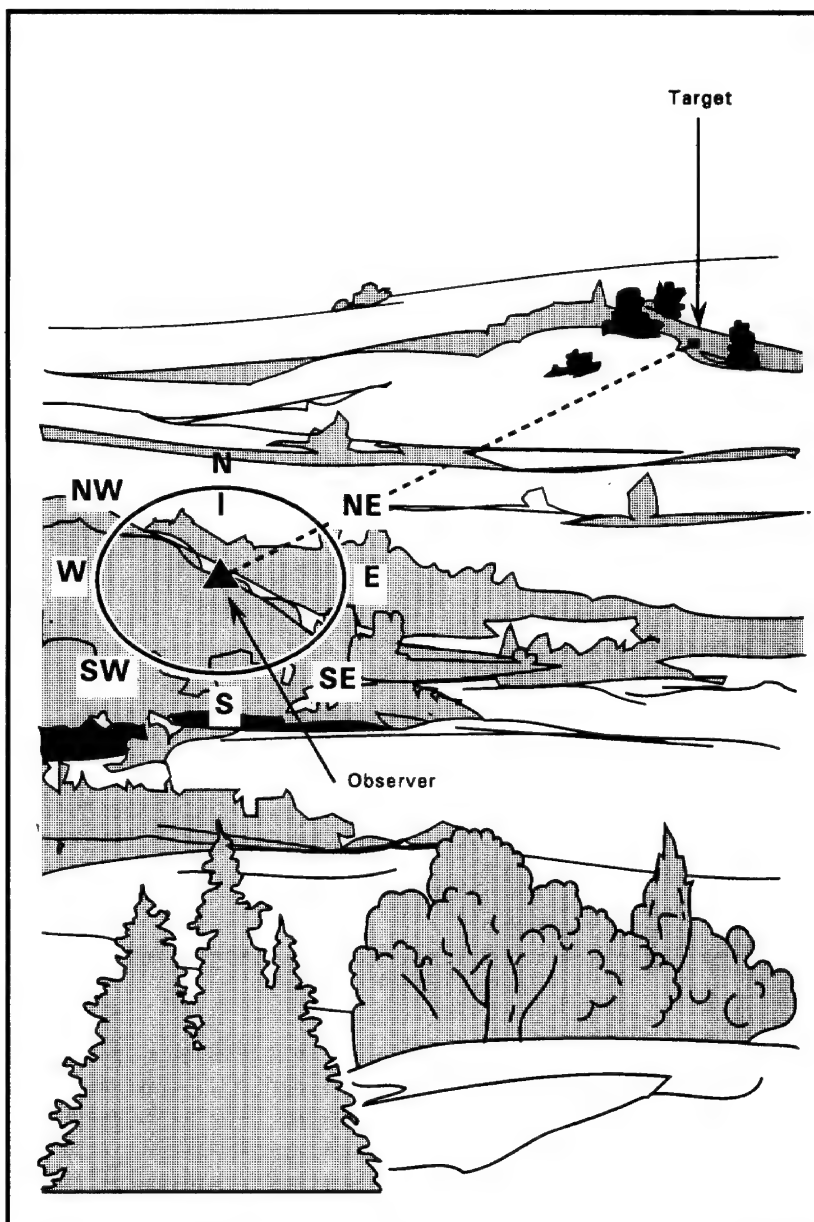


Figure 7-7. Shift from a known point using cardinal direction.

The observer then determines the lateral and range shifts (see Figure 7-8). Lateral shifts are left or right from the known point to the OT line and are given to the nearest 10 meters. Range shifts are given as "ADD" (when the target is beyond the known point) or "DROP" (when the target is closer than the known point). Range shifts are given to the nearest 100 meters. FM 6-30 explains in detail how to determine the lateral and range shifts.

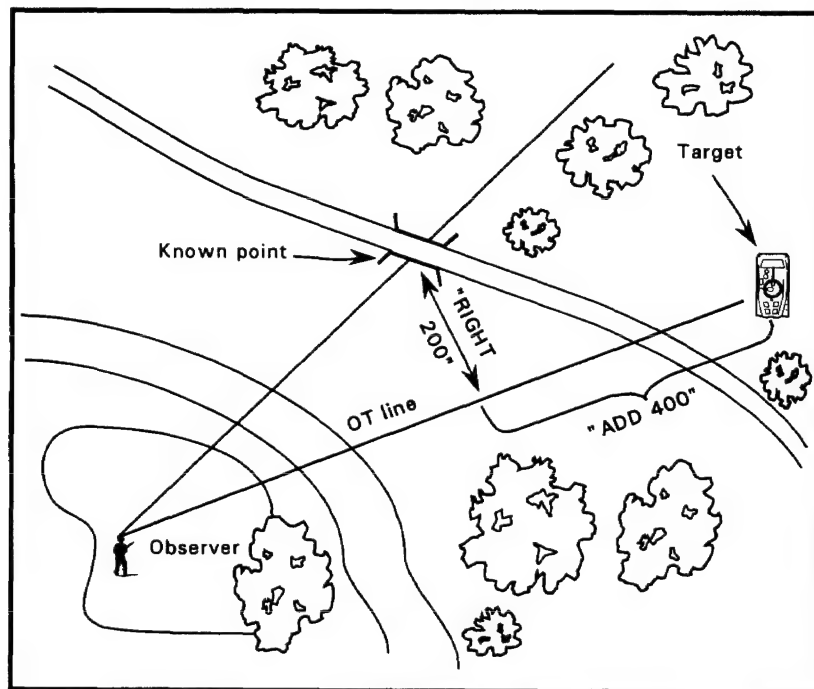


Figure 7-8. Lateral and range shifts.

Description of target, method of engagement, and method of fire and control (third transmission). The observer includes these elements in his call for fire using the guidelines discussed in the following paragraphs.

Description of target. The observer describes the target to the FDC (see Figure 7-9 page 7-14). The FDC then determines the type and amount of ammunition needed. The target description should be brief yet accurate. This is the last required element in the call for fire.

	EXAMPLES	
What the target is:	Tanks and dismounted infantry, or truck convoy, or artillery battery	
What the target is doing:	Attacking, or digging in, or moving on route 45, or firing	
Strength of the target:	Company or infantry with 10 tanks, or 20 trucks, or 6 guns	
Degree of protection:	In the open, or dug in, or in bunkers with overhead cover	
Target shape and size:	Generally used for linear (trenchlines or roads), circular (assembly areas or strongpoints), or rectangular targets. Examples:	
	SHAPE	SIZE
	Linear	Grid 186278, length 800 meters, attitude 2,150 (azimuth of target's long axis)
		or
	Circular	Grid 186278 to 192284, radius 200
		or
	Rectangular	400 by 200, attitude 3,450 (azimuth of target's long axis)

Figure 7-9. Target description.

Method of engagement. The observer tells how he wants to attack the target (type of ammunition, fuze, distance from friendly troops). Ammunition type and fuze may be altered by the FDC based on ammunition constraints. If the target is within 600 meters of friendly troops, the observer announces "DANGER CLOSE" to supporting mortars and artillery. When "DANGER CLOSE" is called, the initial rounds in adjustment should use a delay fuze.

Method of fire and control. The observer states who will give the command for fire to begin. If the observer wants to control the time of firing, he will say, "AT MY COMMAND." The FDC will tell the observer when the unit is ready to fire. At the proper time, the observer will say, "FIRE." If the observer does not say, "AT MY COMMAND," the FDC will fire as soon as the platoon/battery is ready.

Adjusting Indirect Fire

Once the call for fire has been made, the observer's next concern is to get the fire on the target. If he can locate the target accurately, he will request fire for effect in his call for fire. When the observer cannot accurately locate the target for any reason (deceptive terrain, lack of identifiable terrain features, poor visibility, or an inaccurate map), he must conduct an adjustment to get the fire on target. Normally, one artillery piece or mortar is used in adjustment.

The observer must first pick an adjusting point. For a destruction mission (precision fire), the target is the adjusting point. For an area target (area fire), the observer must pick a well-defined adjusting point at the center of the area or close to it. The observer must spot the first adjusting round and each successive round and send range and deviation corrections, as required, back to the FDC until fire hits the target. The observer spots by relating the burst or group of bursts to the adjusting point. For a further discussion of adjusting mortar and artillery fire, see FM 6-30.

Deviation spotting. As applied to deviation (left or right), spotting involves measuring the horizontal angle (in mils) between the burst and the adjusting point (see Figure 7-10). A burst to the right (or left) of the target is spotted as "(number) MILS RIGHT (LEFT)."

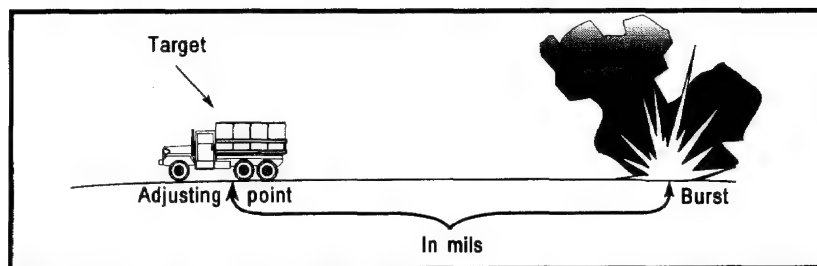


Figure 7-10. Deviation spotting.

An angle-measuring device or technique, such as the mil scale on military binoculars or the hand-and-fingers method, is required to determine deviation. The reticle in binoculars is shown in Figure 7-11. The horizontal scale, divided into 10-mil increments, is used for measuring horizontal angles. The vertical scales in 5-mil increments in the center and on the left side of the reticle are used for measuring vertical angles. The scale on the right, if present, is no longer used. The hand-and-fingers technique may be used as shown in Figure 7-12.

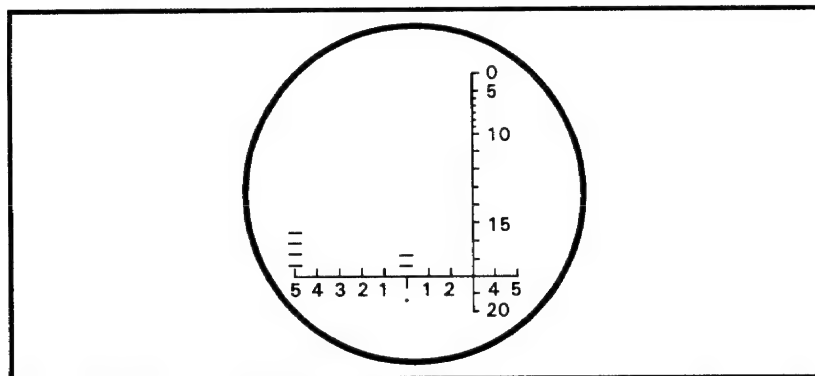


Figure 7-11. Mil scale on binoculars.

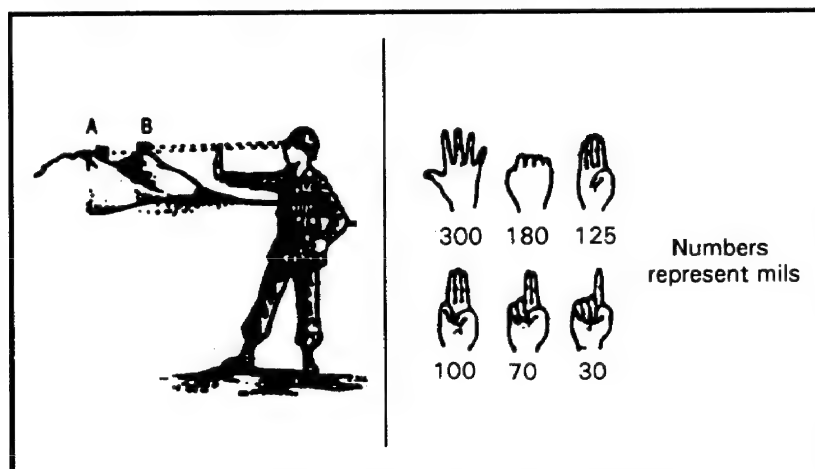


Figure 7-12. Using hand and fingers to determine deviation.

A burst on the OT line is spotted as "LINE." Deviation to the left or right should be measured to the nearest 5 mils for area targets, with measurements taken from the center of the burst. Deviation for a destruction mission (precision fire) is estimated to the nearest mil. In the example shown in Figure 7-13, the adjusting point is at the center of the binoculars' horizontal scale.

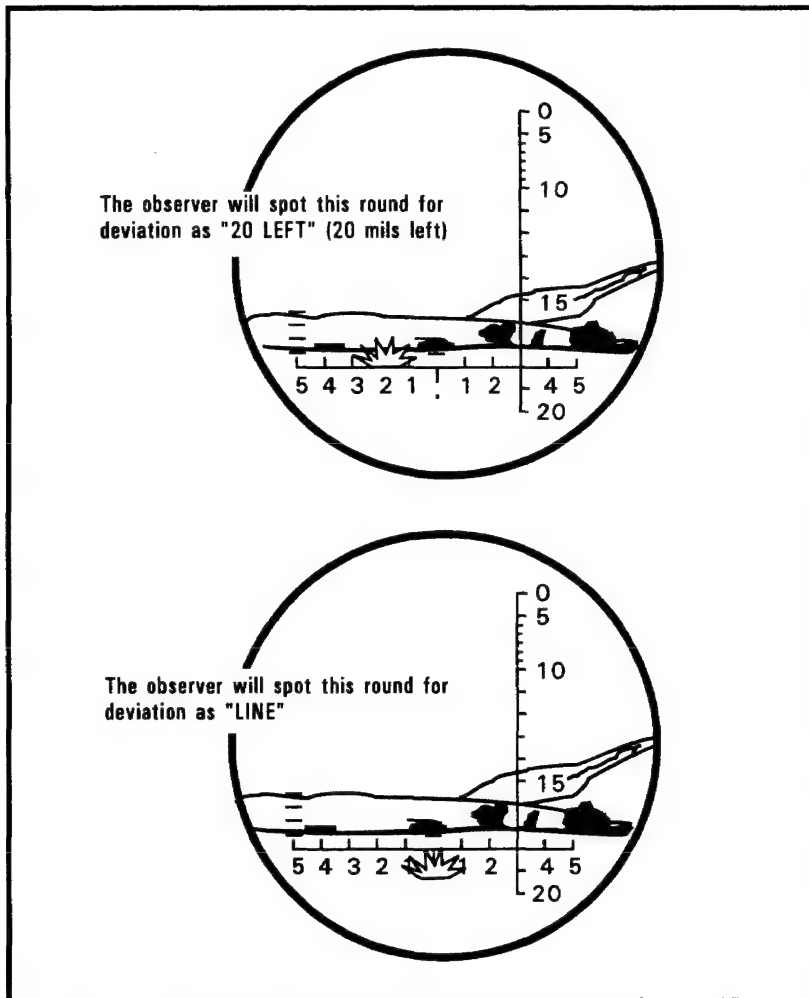


Figure 7-13. Deviation spotting with binoculars.

Deviation correction. Once the mil deviation has been determined, the observer must convert it into a deviation correction (in meters). Deviation correction is the distance in meters the burst must be moved to be on line between observer and target. It is sent, with the range correction, to the FDC for the next adjusting round or when calling for fire for effect. Deviation correction is determined by multiplying the observed deviation in mils by the distance from the observer to the target in thousands of meters. This distance is expressed as the OT factor (see Figure 7-14). The correction is expressed to the nearest 10 meters (see Figure 7-15).

GUIDE FOR DETERMINING THE OT FACTOR	OT distance greater than 1,000 meters. Round to the nearest thousand, and express in thousands of meters
	EXAMPLES: OT distance, 4,200 meters– OT factor, 4.0
	OT distance, 2,700 meters– OT factor, 3.0
	OT distance less than 1,000 meters. Round to the nearest 100 meters and express in thousands of meters. EXAMPLES: OT distance, 800 meters– OT factor, 0.8

Figure 7-14. Determining the OT factor.

Minor deviation corrections (10 to 20 meters) are necessary in adjustment of precision fire. In adjustment of area fire, however, small deviation corrections (20 meters or less) should be ignored except when such a small change is necessary to determine a definite range spotting. Throughout the adjustment, the observer should move the adjusting rounds close enough to the OT line so that range spotting can be made accurately.

Range spotting. As applied to range (short or over), spotting is required to make adjustments to get fire on the target (see Figure 7-16, page 7-20). Any range spotting other than “DOUBTFUL” or “LOST” is definite. Usually, an adjusting round’s burst that is on or near the OT line will give a definite range spotting.

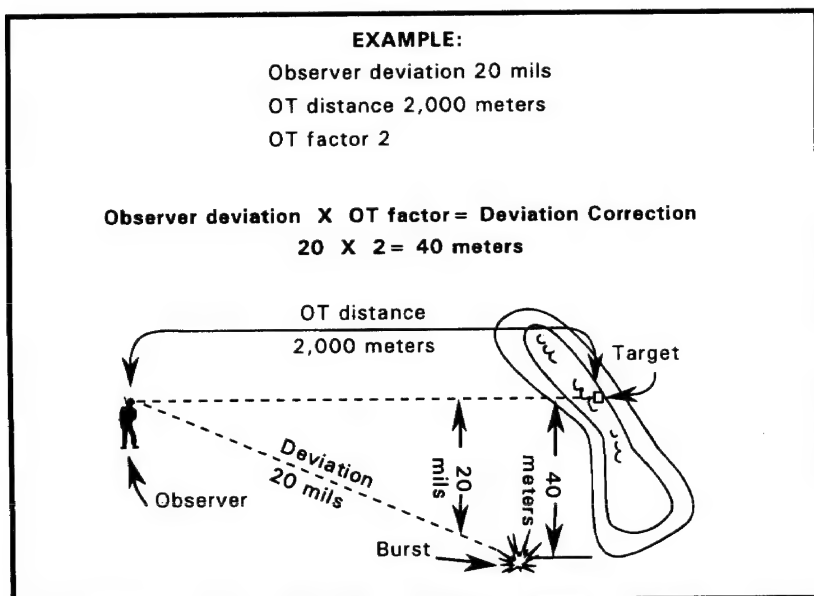


Figure 7-15. Converting mil deviation to deviation correction.

The observer can make a definite range spotting even when the burst is not on or near the OT line. He uses his knowledge of the terrain or wind and observes debris scattered by the explosion. However, if the observer is not sure ("DOUBTFUL"), the correction he sends to the FDC should be for deviation ("LEFT" or "RIGHT") only. This is done to bring the burst on line to get a definite range spotting ("OVER," "SHORT," or "TARGET").

Range correction. The observer gives range corrections so that, with each successive correction, the adjusting round intentionally hits over or short of the adjusting point, closing on the target. Fire for effect is called for when a range correction would bring the next round within 50 meters of the adjusting point. This technique is called bracketing (see Figure 7-17, page 7-21).

Bracketing is a safe technique in that it is sure to bring fire on the target. Time is important, especially when targets are moving or may move to seek cover when they find fire coming their way. Accurate initial location data speed adjustment and make the requested fire more effective. To shorten adjustment time, the observer should try to bracket the target quickly (in the first two or three adjusting rounds), then try to adjust on the target with as few subsequent rounds as possible.

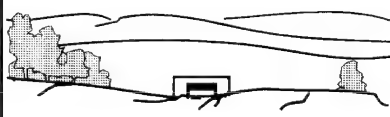
TRANSMISSION/ EXPLANATION	SIGHT PICTURE
"OVER." A burst that appears beyond the adjusting point	 Target adjusting point
"SHORT." A burst that appears between the observer and the adjusting point	
"TARGET." A burst that hits the target. This spotting is used only in precision fire (destruction missions)	
"RANGE CORRECT." A burst that appears to be at the correct range	
"DOUBTFUL." A burst that can be observed but cannot be spotted as OVER, SHORT, TARGET, or RANGE CORRECT	
"LOST." A burst whose location cannot be determined	
"LOST OVER." or "LOST SHORT." A burst that is not observed but that is definitely known to be beyond or short of the adjusting point	

Figure 7-16. Range spotting.

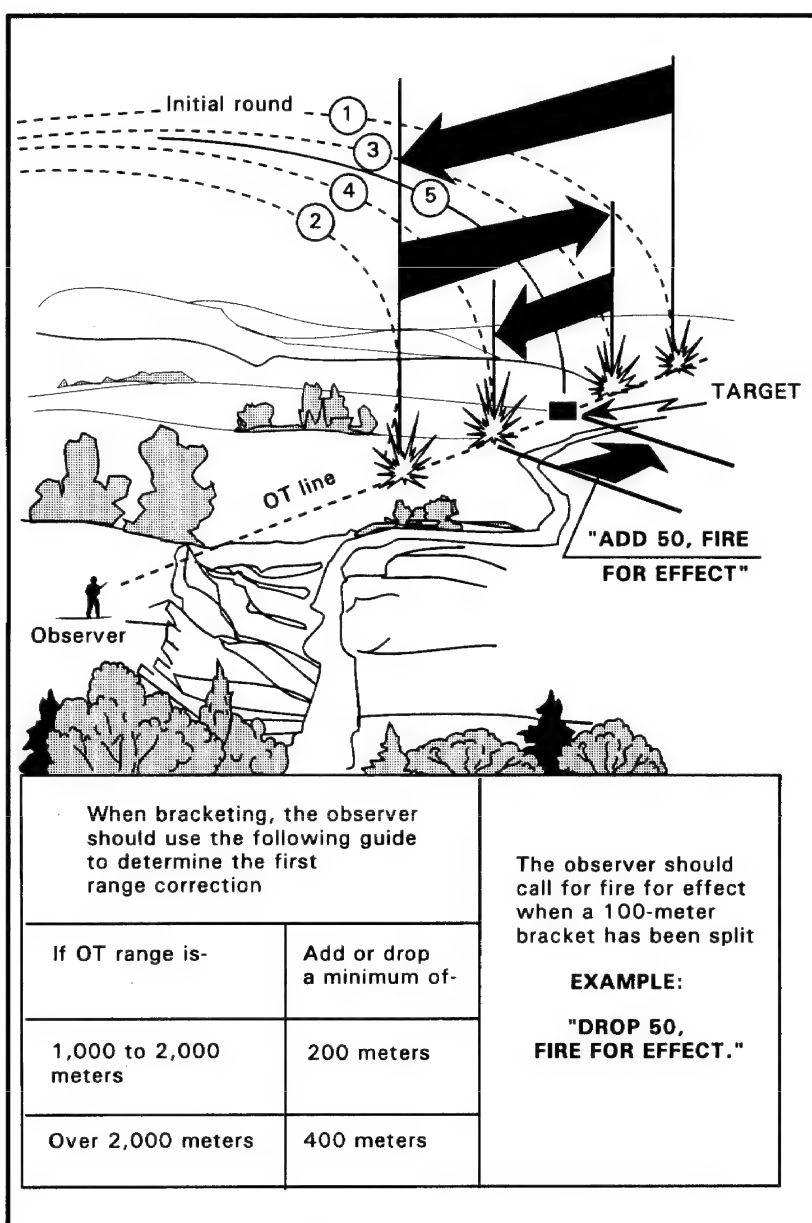


Figure 7-17. Bracketing.

Experience has shown that effectiveness on the target decreases as the number of rounds used in adjustment increases. An alternative to successive bracketing is hasty bracketing. While successive bracketing mathematically ensures that the fire-for-effect rounds will strike within 50 meters of the adjusting point, it is a slow and unresponsive technique. Therefore, if the nature of the target dictates that effective fires are needed faster than successive bracketing can provide them, hasty bracketing should be used. The success of hasty bracketing depends on a thorough terrain analysis that gives the observer an accurate initial target location. The observer obtains a bracket on his first correction in a manner similar to that used for successive bracketing. Once the observer has this initial bracket, he uses it as a yardstick to determine his subsequent correction. He then sends the FDC the correction to move the rounds to the target and fire for effect (see Figure 7-18). Hasty bracketing improves as the observer gains experience and judgment. Every observer must strive to improve his abilities and increase his responsiveness on the battlefield.

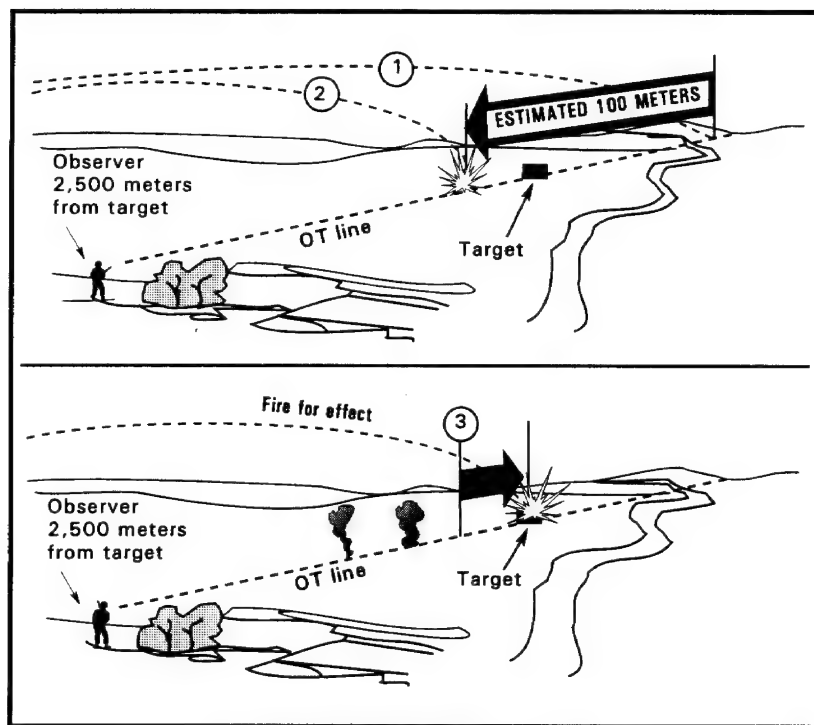


Figure 7-18. Hasty bracketing.

The creeping method of adjustment is used in “DANGER CLOSE” situations. Here, the initial round is fired beyond the target. Adjusting rounds are brought in 100 meters or less until the target is engaged (see Figure 7-19). This method is slow and tends to use more ammunition than other adjustments; therefore, it should be used only when soldier safety is a major concern.

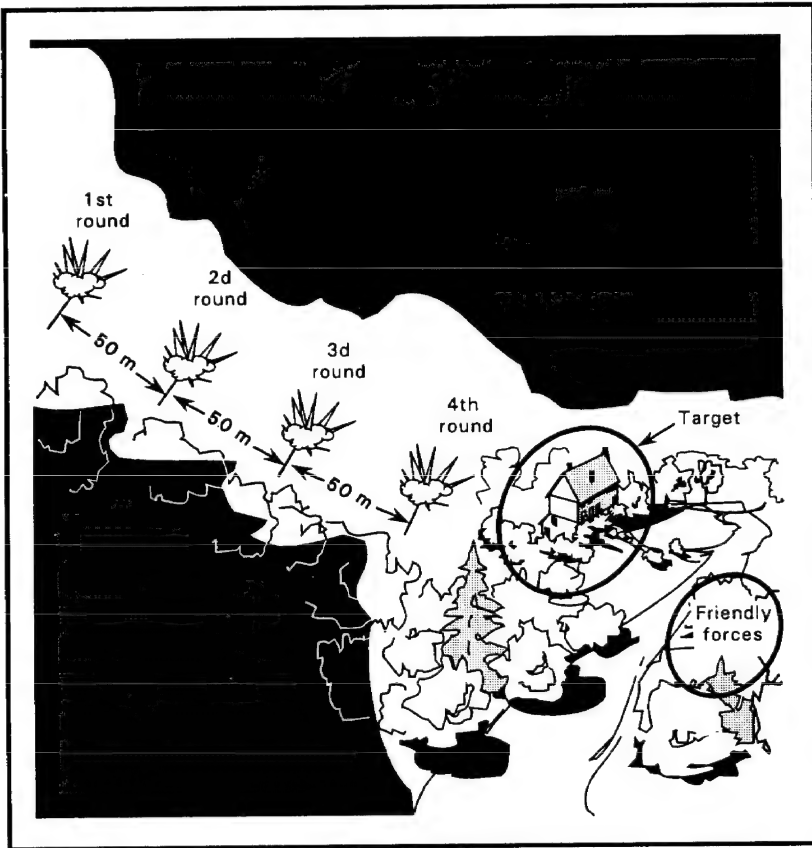


Figure 7-19. Creeping.

Refinement and Surveillance

The observer should note the results of the fire for effect and then take whatever action is necessary to complete the mission. [Figure 7-20](#), page 7-24, shows the observer's actions after the fire-for-effect rounds have been fired.

RESULTS OF FIRE FOR EFFECT	OBSERVER'S ACTIONS (RADIO TRANSMISSIONS IN PARENTHESES)
Accurate and sufficient	End of mission, surveillance ("END OF MISSION, RPG SILENCED, OVER")
Accurate, sufficient, target replot desired	Request replot, end of mission, surveillance ("RECORD AS TARGET, END OF MISSION, BMP NEUTRALIZED, OVER")
Inaccurate and sufficient	Refinement, end of mission, surveillance ("RIGHT 20, ADD 20, END OF MISSION, RPG SILENCED, OVER")
Inaccurate, sufficient, target replot desired	Refinement, request replot, end of mission, surveillance ("RIGHT 10, RECORD AS TARGET, END OF MISSION, BMP NEUTRALIZED, OVER")
Inaccurate and insufficient	Refinement, repeat and reenter, adjust fire ("RIGHT 10, ADD 50, REPEAT, or RIGHT 10, ADD 100, ADJUST FIRE, OVER")
Accurate and insufficient	Repeat ("REPEAT, OVER")

Figure 7-20. Observer's actions after fire for effect.

SCOUT PLATOON FIRE PLANNING

Scout platoons conducting security or reconnaissance operations may be required to execute the LX) prior to the completion of the maneuver and fire support plan. When this happens, scouts must coordinate with the battalion FSO to develop a fire support plan. This fire planning should take into account the enemy situational template, key terrain that affects the platoon's maneuver, and enemy battalion-size RAAs. During security operations, it is particularly important to plan fires in support of point obstacles. These fires should be registered whenever possible to ensure maximum effect when they are executed.

Section II. ARMY AVIATION

AIR CAVALRY

Scout platoons in regimental squadrons and divisional cavalry or reconnaissance squadrons must establish a close working relationship with air cavalry troops. Air cavalry gives the ground commander or scout platoon flexibility through its mobility and speed, increasing the speed with which reconnaissance is conducted. It also can screen between and forward of OPs established by the platoon. (See Figure 7-21.)

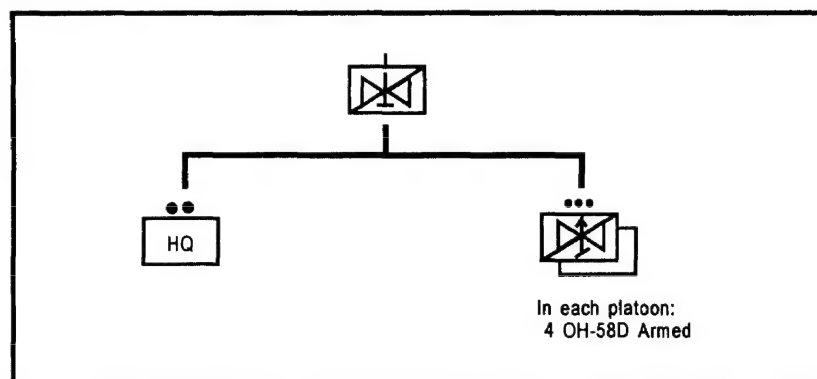


Figure 7-21. Air cavalry troop.

The major aircraft found in air cavalry units is the OH-58D. This helicopter provides substantial limited visibility and all-weather acquisition capability. The aircraft features a stabilized mast mounted sight (MMS) with a low-light TV camera, thermal imaging system, and laser range finder/designator. It can acquire armored vehicle targets at night at ranges up to 10 kilometers. It is also armed with a wide assortment of weapons and thus can be configured for a variety of threat situations. (See [Figure 7-22](#) page 7-26).

ATTACK HELICOPTERS

The attack helicopter is primarily an antiarmor weapon system. Attack helicopter companies are maneuver units and are normally integrated into the ground scheme of maneuver. When working with ground maneuver units, the

attack helicopter unit maybe placed OPCON to the ground force. Normally, it is OPCON to a maneuver brigade or regiment; on rare occasions, it is OPCON to a battalion or squadron. (See [Figure 7-23](#))

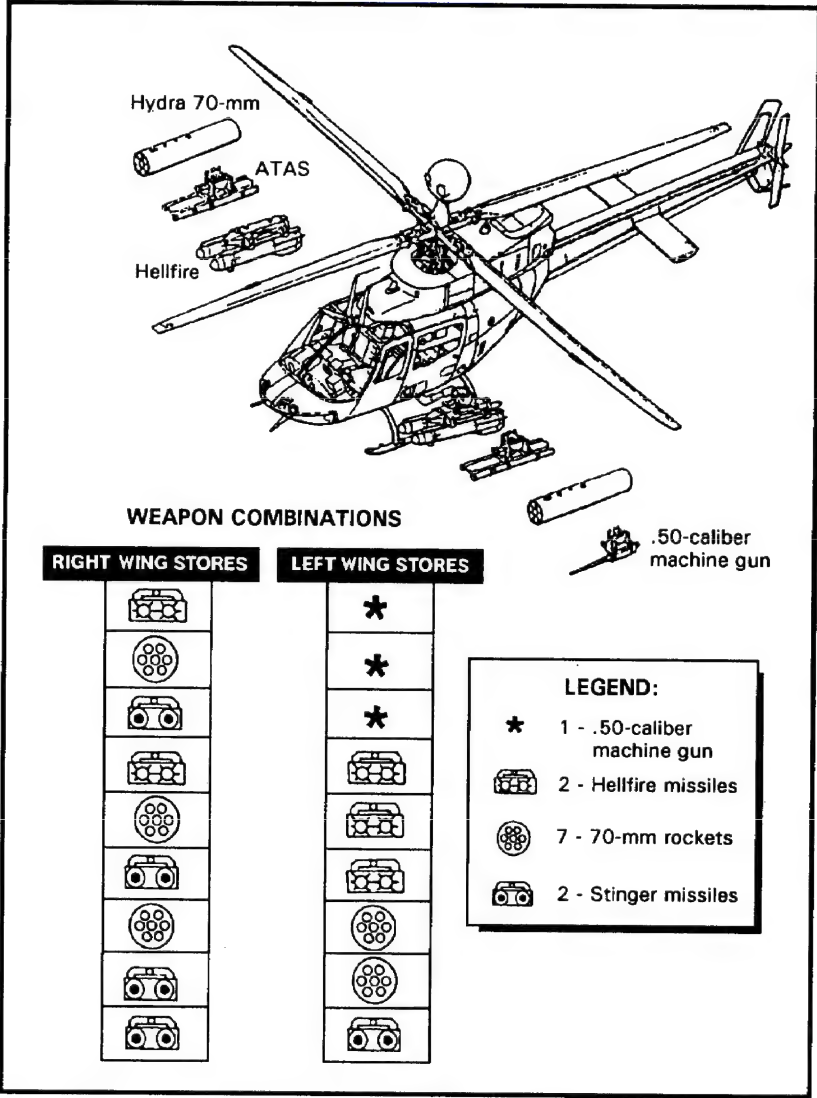


Figure 7-22. OH-58D armed helicopter.

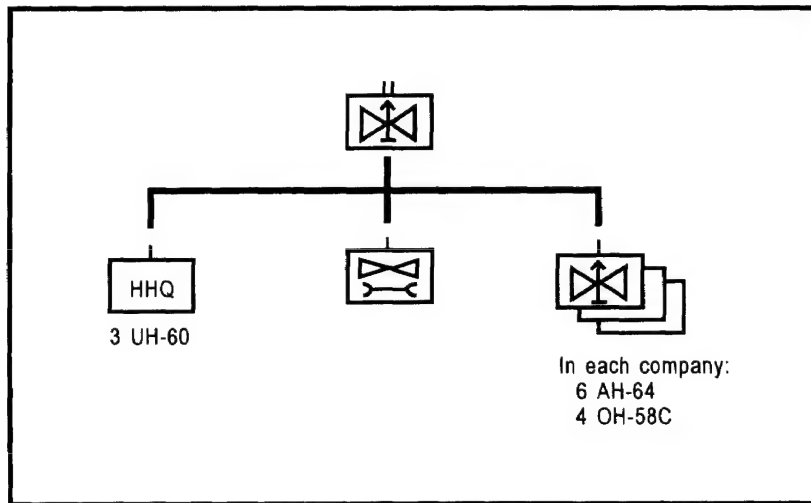


Figure 7-23. Attack helicopter battalion.

Aeroscouts usually arrive before attack aircraft and establish communication with ground forces to get the situation and mission from the commander. The aeroscouts identify targets, choose general BPs, and control attack helicopter fires. During the conduct of a passage of lines, scout platoons may direct attack helicopter fires into known enemy locations and may receive target information not visible from the ground.

AIR CAVALRY AND THE SCOUT PLATOON

The Army aviation element the scout platoon is most likely to deal with is the air cavalry platoon or air cavalry troop. When operating with ground scouts, air cavalry is normally under the operational control of the battalion or squadron. To be successful, the air cavalry platoon must communicate and coordinate directly with the most forward ground scouts. Air scouts can be used to support the ground commander's requirements in two ways: they can augment the ground scouts' effort, or they can complement the ground effort. Augmentation of ground scouts with air cavalry maximizes the capabilities of both elements and minimizes their limitations (see [Figure 7-24](#), page 7-28). Both elements work together to accomplish the same goal or objective. When augmenting the scout platoon, air cavalry elements normally operate forward of the ground elements.

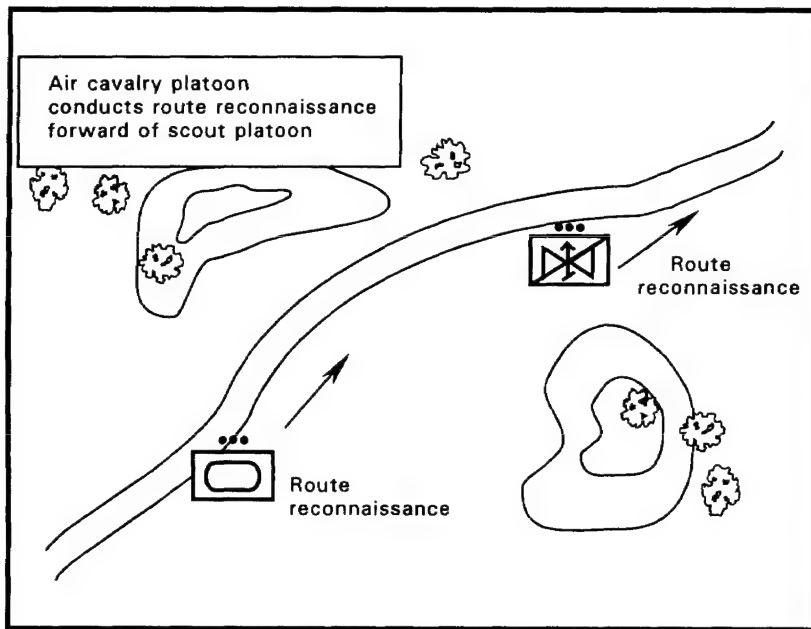


Figure 7-24. Air cavalry platoon augmenting the scout platoon.

In a complementary relationship, air cavalry and ground scouts are assigned different objectives or tasks; they work independently as required to support their common commander. This permits a greater number of tasks or separate missions to be accomplished simultaneously. Often air cavalry complements ground scouts by performing missions to the flank of or adjacent to the scout platoon (see [Figure 7-25](#)).

COMMAND AND CONTROL

Command and control is essential to effective air-ground coordination. The command relationship is particularly critical when air elements are augmenting ground units (or visa versa). Three different command relationships can be used to coordinate the efforts of air cavalry and the scout platoon: the air element under the operational control of the scout platoon; the scout platoon under the operational control of the air element; or both elements working independently for a common higher commander. The situation will determine whether the air leader is the air cavalry troop commander or an air cavalry platoon leader.

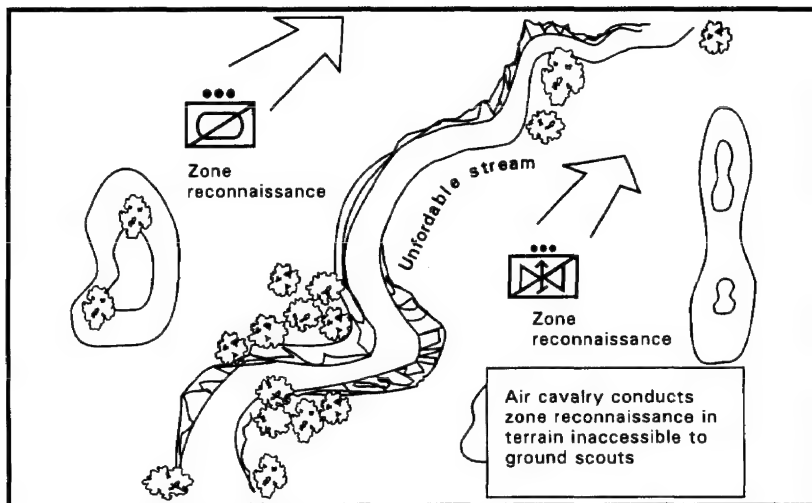


Figure 7-25. Air cavalry platoon complementing the scout platoon.

Air Element Under Operational Control of the Scout Platoon

This command relationship may be used when the availability of air cavalry is only temporary or when the scout platoon is in close contact with the enemy at the time air scouts arrive in the area.

Scout Platoon Under Operational Control of the Air Commander

This relationship would be used when the scout platoon is operating separately from its parent unit with an air cavalry troop. The air cavalry troop has the preponderance of combat power, leadership, and command and control resources in the area of operations. In addition, the air cavalry troop has superior long-range communications capability.

Air and Ground Scouts Under Control of Common Commander

This relationship is the most common and is usually the most effective. With the air and ground scouts operating independently, they can freely and quickly employ their elements to take maximum advantage of their unique capabilities. Further, the common commander, normally at battalion or squadron level, can ensure that guidance is provided to both elements so that their efforts are coordinated. In this relationship, informal coordination also occurs directly between the ground scout and the air cavalry platoon. This is done over the ground scout platoon net.

RECONNAISSANCE OPERATIONS

When the scout platoon is augmented by air cavalry during reconnaissance operations, the air cavalry normally operates forward of the scout platoon. Air cavalry will focus on areas that will impede ground movement. Also, air cavalry will conduct detailed reconnaissance of areas that are particularly dangerous to ground reconnaissance elements, such as clearings and defiles. Upon contact, air cavalry will provide early warning for the following scout platoon and then maintain contact until the scout platoon moves up for handover.

SECURITY OPERATIONS

Air cavalry can augment the scout platoon during security operations by assisting in identifying enemy reconnaissance and main body elements and providing early warning forward of the platoon. Because of the range of its sensors, air cavalry does not require positions forward of the scout platoon to acquire enemy elements. During daylight operations, the air scouts generally will be forward of the scout platoon; during limited visibility, they will deploy on line or slightly to the rear of ground elements. Positioning will always ultimately depend on the specific METT-T situation. In addition to acquiring enemy elements, air cavalry can play a critical role in providing position security through the depth of the screen by observing dead space between OPs (see Figure 7-26).

AREA SECURITY

Air cavalry elements can augment or complement the scout platoon during area security missions by screening or conducting reconnaissance. An air screen can provide early warning for a scout platoon executing convoy escort or securing a critical point (see Figure 7-27). Air reconnaissance can identify enemy ambush positions forward of the convoy or bypasses the convoy can use to move around an obstacle (see Figure 7-28, page 7-32).

AIR-GROUND BATTLE HANDOVER

When an air cavalry platoon makes contact, particularly during reconnaissance operations, it attempts to hand off the contact to ground scouts as quickly as possible. A speedy handover allows the air scouts to avoid enemy air defense weapons and also helps to maintain the tempo of the operation. During the handover, the air cavalry platoon is in charge and provides direction to the ground scout team charged with establishing contact with the enemy. The air cavalry also is responsible for ensuring the protection of both ground and air scouts; it must maintain contact with the enemy until the ground unit is in position and has also established contact.

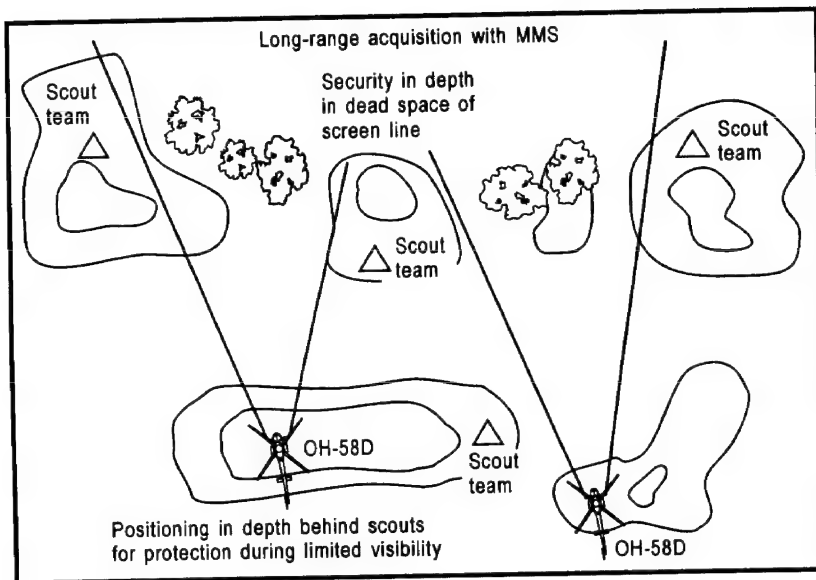


Figure 7-26. Air cavalry augmenting ground screen.

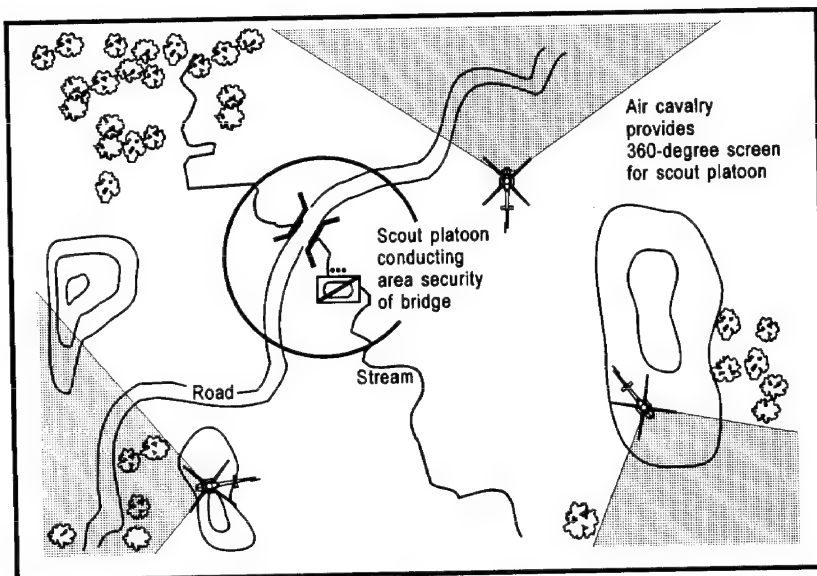


Figure 7-27. Air cavalry screening for scout platoon.

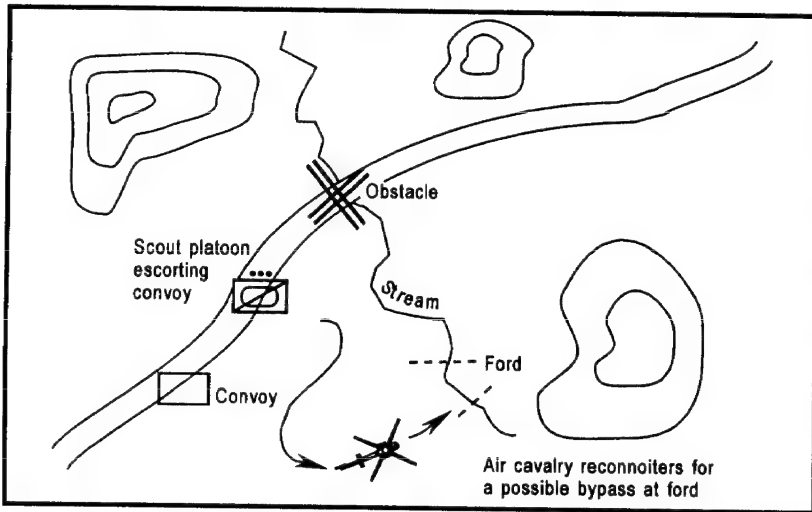


Figure 7-28. Air cavalry reconnoitering for a bypass.

The first action in the handoff process is a spot report and situation report from the air cavalry platoon team leader to the ground scout team leader. The two leaders also determine the time and place for linkup between their elements (see Figure 7-29A).

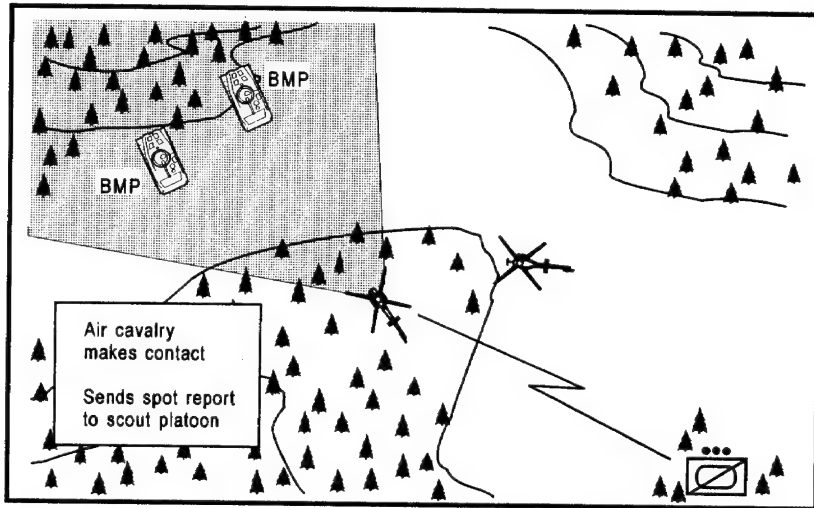


Figure 7-29A. Air-ground battle handover.

Next, the air cavalry platoon leaves an element in contact with the enemy while it scouts the area for secure positions for the ground scouts. The air cavalry platoon identifies hide positions, overwatch positions, OP positions, and mounted and dismounted routes into the area (see Figure 7-29B).

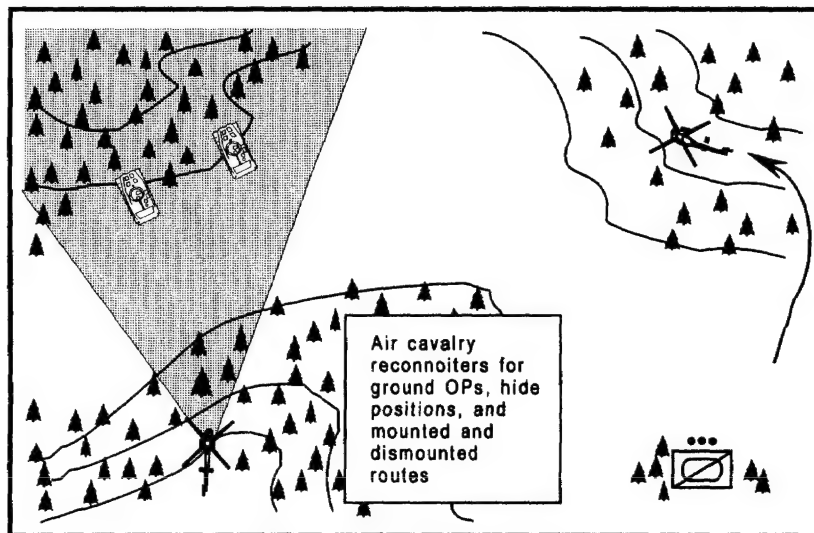


Figure 7-29B. Air-ground battle handover (continued).

Once this is complete, the air cavalry platoon moves to link up with the ground scouts. Ideally, the air cavalry team leader should land and brief the scout team leader face-to-face. If this is not possible because of time constraints, the briefing is done over the radio. Linkup is complete when both elements have visually identified each other (see Figure 7-29C, page 7-34).

After linkup, the ground team moves to its initial hide positions along the route selected by the air cavalry platoon. Scouts then move dismounted to make contact with the enemy. Once contact is established, the ground team leader sends a spot report to the air team leader. When the air leader confirms that the ground scouts can observe all enemy elements and have a clear picture of the situation, he announces that handover is complete; the ground team leader acknowledges the transmission. The air scouts then continue their mission bypassing the enemy elements that have been handed off (see Figure 7-29D, page 7-34).

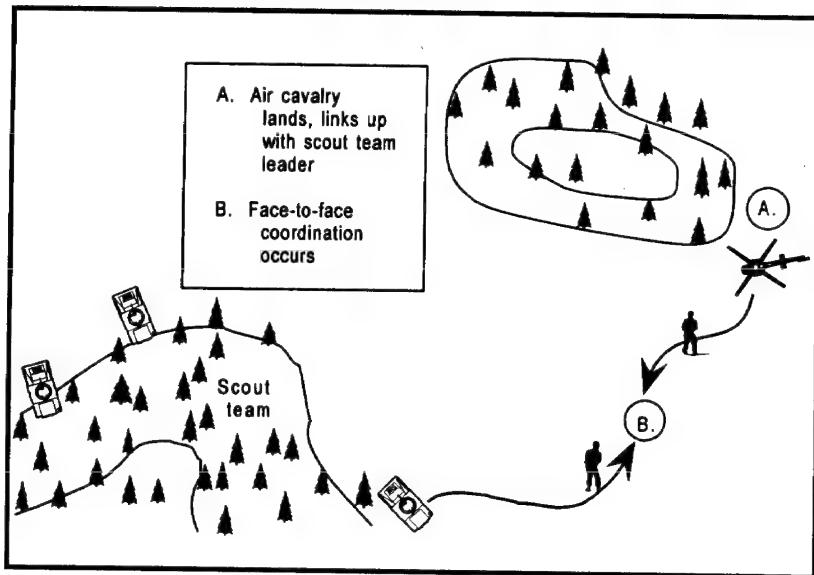


Figure 7-29C. Air-ground battle handover (continued).

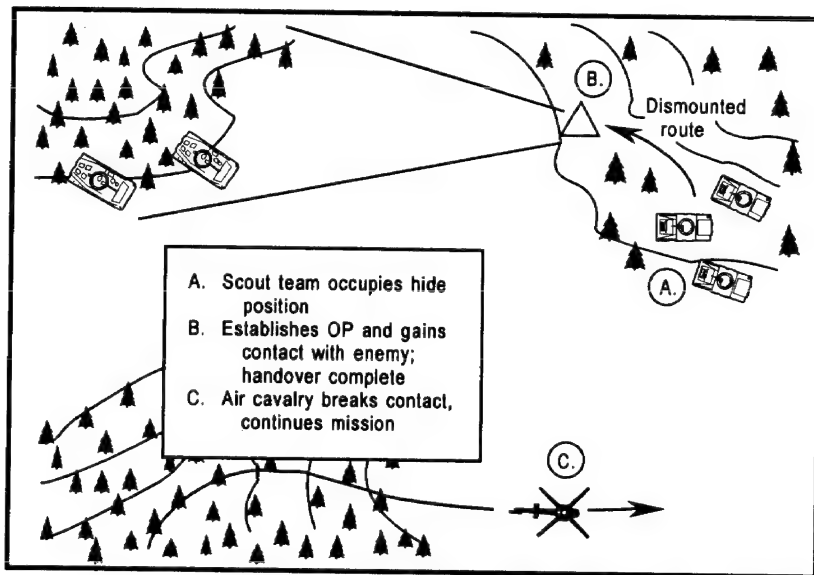


Figure 7-29D. Air-ground battle handover (continued).

Section III. COMBAT ENGINEERS

Brigade/regiment and battalion/squadron commanders decide how best to employ their engineer assets: as a distinct unit, attached to their subordinate elements, or in DS of the subordinate elements. In fast-moving offensive operations, one technique is to attach engineers to the lead company team or to troops in counterobstacle team configurations. In the defense, commanders generally keep engineer units intact to construct major obstacles, designating a priority of work to be accomplished. Engineers are trained to fight as infantry as a secondary mission; however, they are employed as infantry only if absolutely necessary. This decision should be authorized by the next higher commander. The basic engineer unit with which the scout platoon is likely to operate is the combat engineer platoon (see Figure 7-30).

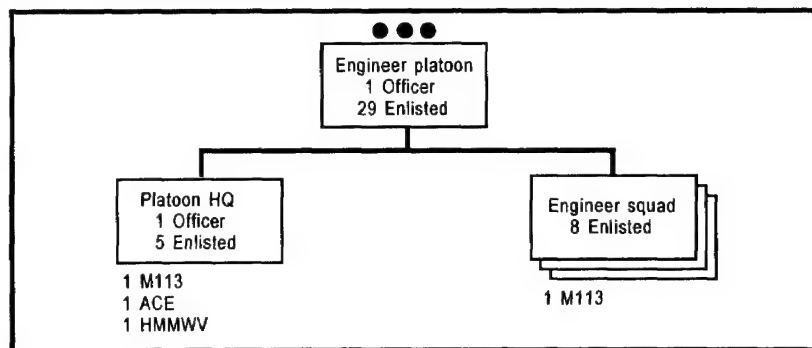


Figure 7-30. Organization of a combat engineer platoon.

CAPABILITIES

A combat engineer platoon is uniquely equipped and trained to conduct mobility, countermobility, and survivability operations in support of ground operations. The engineers' specific tasks and responsibilities in these three roles are determined by the higher unit commander.

In mobility operations, the engineer platoon can provide—

- Obstacle reduction. The engineers can reduce or negate the effects of obstacles, thereby improving their parent, unit's maneuver capability.
- Route construction. The engineers can construct, improve, and maintain roads, bridges, and fords.

In a countermobility role, the engineers can assist with obstacle construction. They can reinforce terrain with obstacles that will disrupt, fix, turn, or block the enemy force to support the scheme of maneuver.

In survivability operations, the engineers can improve positions by constructing berms, dug-in positions, and overhead protection to reduce the effectiveness of enemy weapons.

The combat engineer platoon consists of three squads mounted in M113s. Each squad has a demolition set, chain saw, and mine detector. The platoon headquarters is authorized one M9 armored combat earthmover (ACE), which is highly mobile, armored, and amphibious (see Figure 7-31). The platoon may also be supplemented with equipment from the engineer company, such as an armored vehicle launched bridge (AVLB) or CEV.

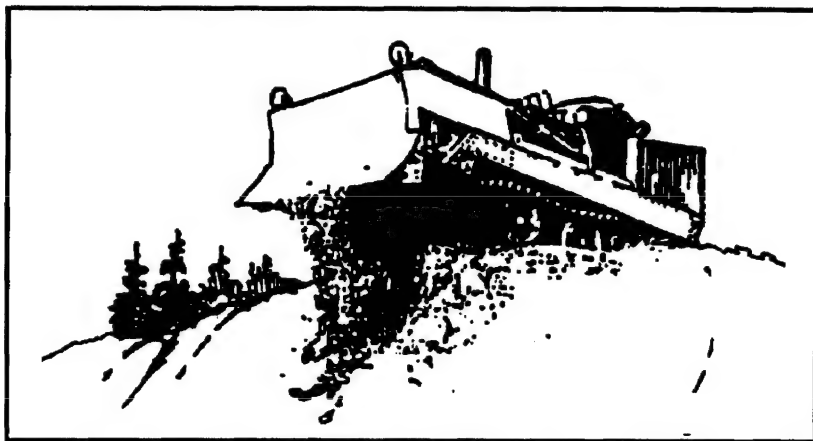


Figure 7-31. M9 armored combat earthmover.

An AVLB is a tank chassis modified to transport, launch, and retrieve a 60-foot bridge. The bridge is capable of supporting military-load class 60 tracked vehicles across a 17-meter gap and military-load class 70 tracked vehicles across a 15-meter gap (see [Figure 7-32](#)).

The CEV is an armored vehicle, built on an M60A1 tank chassis, with a hydraulically operated dozer blade, a 165-mm turret-mounted demolition gun, a retractable boom, and a winch (see [Figure 7-33](#)).

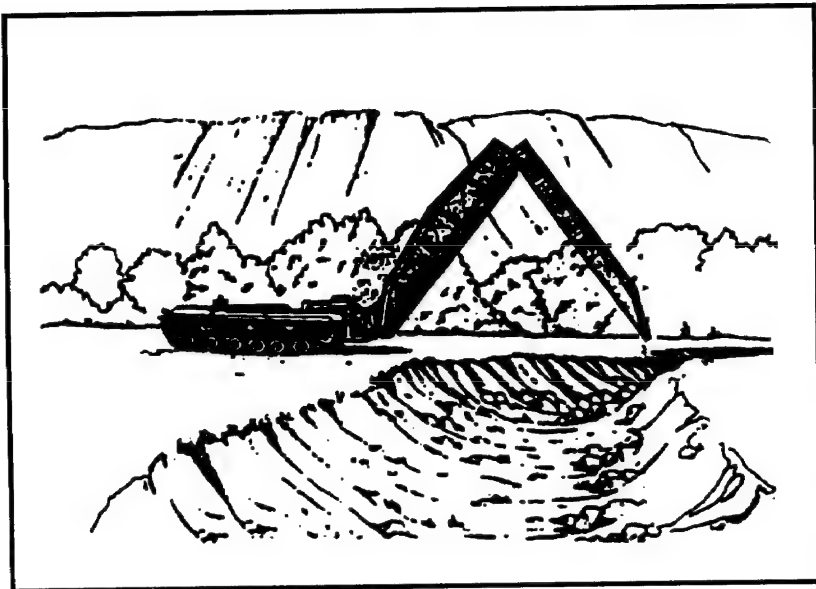


Figure 7-32. Armored vehicle launched bridge.

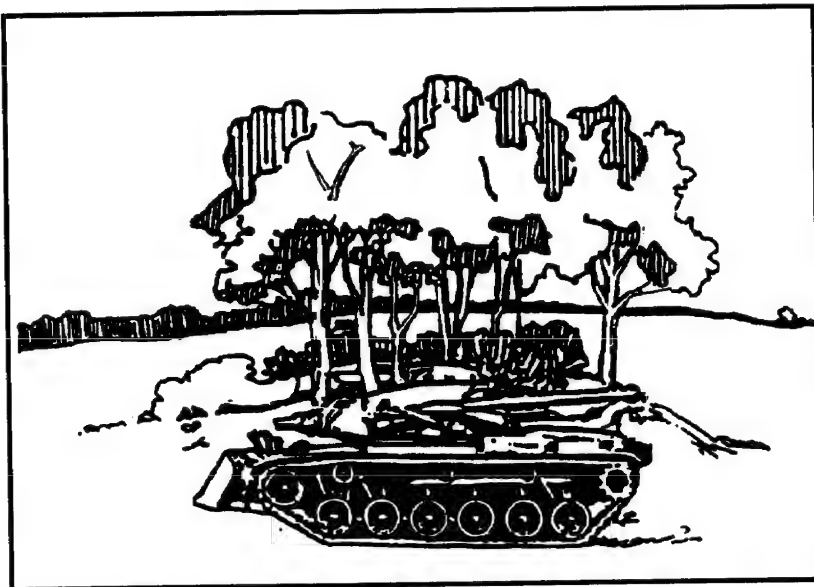


Figure 7-33. Combat engineer vehicle.

ENGINEER SUPPORT TO THE SCOUT PLATOON

Reconnaissance Operations

In reconnaissance operations, an engineer squad may be placed in DS to a scout platoon. The engineers should remain attached to the scout platoon for the duration of the reconnaissance. The squad can assist in mobility operations and provide technical advice to the scout platoon leader as to what effort and equipment are required to breach a particular obstacle. This information can be relayed back to the main body to facilitate its breaching preparations. The actual breaching capabilities of an engineer squad are limited to manual and explosive methods. The engineer squad may—

- Conduct route and bridge classification.
- Assist in locating bypasses around obstacles.
- Conduct limited breaching operations through log cribs, abatises, and minefields. The scouts must provide security for the engineer squad while it is conducting breaches.
- Identify the exact composition and dimensions of the obstacle.
- Conduct tactical or technical reconnaissance.

Engineers conduct tactical reconnaissance in the offense as part of the combined arms team reconnaissance effort; normally, they are attached to scout elements to facilitate command and control and logistical support. The engineers' key tactical reconnaissance objective is to provide the commander with obstacle intelligence (OBSINTEL) within the area of operations. This information, combined with intelligence obtained by the scouts, allows the combined arms force to maneuver more effectively against the enemy. It tells the commander whether a bypass is possible or, if not, how to conduct breaching operations with the right equipment at the right location.

Engineers conduct technical reconnaissance to collect specialized information about a designated target, area, or route. This mission is usually conducted under a low level of threat in areas physically controlled by friendly forces to the rear of the FLOT. Technical reconnaissance is normally a specified task from higher headquarters or is derived from mission analysis.

Whenever possible, engineer elements should have a habitual relationship with the scouts to whom they are attached. They should be task organized with scouts as early as possible in an operation so they can be integrated into the scout platoon leader's troop-leading procedures, rehearsals, OPORD, and movement plans.

Security Operations

Insecurity operations, the scout platoon does not usually have any engineer assets working under its control. Engineer assets normally work under battalion, squadron, or troop control. The scout platoon leader must have access to the battalion, squadron, or troop obstacle plan, including locations of lanes and gaps. Scout platoons may be designated to guard and execute reserve demolition targets that engineer units have prepared. This is called target turnover, and the procedures for this mission are as follows:

- Prior face-to-face coordination between the senior member of the emplacing unit (normally an engineer squad leader) and the demolition guard commander (normally a scout squad leader) speeds the turnover process. Prior coordination is always conducted if the tactical situation permits.
- The senior member of the emplacing unit requires positive identification of the demolition commander by means of sign/countersign procedures or by personal recognition.
- Once identification is established, the emplacing unit gives the demolition guard commander a completed target folder for the target being turned over. The folder contains orders to the demolition guard commander and the firing party commander. The demolition guard commander reviews the orders to ensure he thoroughly understands them and then signs the orders.
- The senior member of the emplacing unit then describes the obstacle in detail to the demolition guard commander.
- Once the demolition guard commander fully understands his responsibilities and he (or the firing party commander, if separately designated) is capable of executing the target, the emplacing unit may depart to conduct further operations.

Section IV. AIR DEFENSE

Air defense assets are scarce; maneuver units cannot plan on always receiving dedicated air defense protection. Consequently, scout platoons must be able to protect themselves from enemy air attacks during all combat operations. Air defense measures include actions to avoid enemy air attack, actions to limit the damage if attacked, and if necessary, fighting back.

PASSIVE AIR DEFENSE

Passive air defense is the scouts' first line of defense against enemy air attack. It includes all measures, other than active defense, taken to minimize the effects of hostile air action. There are two types of passive air defense: attack avoidance and damage-limiting measures.

Attack Avoidance

If the enemy pilot cannot find you, he cannot attack you. Scouts use concealment, camouflage, deception, and any other necessary action to prevent the enemy from seeing them.

Scout positions must provide effective concealment. When concealment is not available, vehicles must be camouflaged to blend into the natural surroundings. Track marks leading into the position must be obliterated. All shiny objects that could reflect light and attract attention must be covered.

Damage-Limiting Measures

Dispersion is one of the most effective ways to reduce the effects of enemy air attack. It is essential when a unit is occupying static positions such as assembly areas or is preparing to cross a water obstacle or a breached obstacle. When the platoon is on the move and air guards identify an enemy air attack, vehicles disperse quickly, move to concealed positions if possible, and stop (a stationary vehicle is more difficult to see than a moving vehicle).

Another damage-limiting measure is the use of natural or man-made cover to reduce the effects of enemy munitions. Folds in the earth, depressions, buildings, and sandbagged positions can provide this protection.

ACTIVE AIR DEFENSE

Although passive measures are the first line of defense against air attack, the scout platoon must be prepared to engage enemy aircraft. The decision to fight back against an air threat is based on the situation and the capabilities of organic weapon systems. All platoon members must understand that they can defend against a direct attack but cannot engage aircraft that are not attacking them unless the weapon control status allows it.

Scouts have several weapon systems (chain guns, machine guns, and small arms) that can be used against aircraft when they must fight back. Engaging aircraft with volume fire is the key to effective use of small arms and machine gun fires against an air attack. These fires must be coordinated to be effective. Delivered on the platoon leader's command, they are directed at an aim point in front of the target (see [Figure 7-34](#), page 7-42); gunners do not attempt to track the target. The rules for selecting the aim point are listed in [Figure 7-35](#), page 7-43. They are simple and logical; they must be learned and retained by everyone in the platoon.

The Bradley's 25-mm gun is effective against helicopters when used with the integrated sight unit and armor-piercing discarding sabot (APDS) ammunition at a high rate of fire (20-to-26-round bursts). Gunners use the standard aim points to engage a moving helicopter; they aim just above the fuselage to engage a hovering helicopter.

MAN-PORTABLE AIR DEFENSE SYSTEMS

Although other forward area air defense (FAAD) systems support both divisional and regimental units, scout platoons with dedicated ADA systems are most likely to be supported by man-portable air defense systems (MANPADS). [Figure 7-36](#), page 7-44, shows the Stinger MANPADS, designed to counter high-performance, low-level, ground attack aircraft; helicopters; and observation and transport aircraft. The missile system is employed by a two-man crew (crew chief and gunner). The MANPADS crew will normally have a wheeled vehicle (HMMWV) or a Bradley Stinger fighting vehicle (BSFV) as its assigned transportation. Unit leaders must carefully consider the consequences before separating a Stinger team from its vehicle. Stinger teams operating away from their vehicles will have no more than two missiles available for resupply.

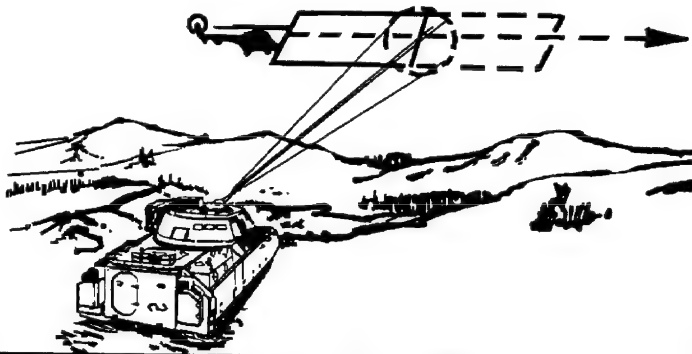
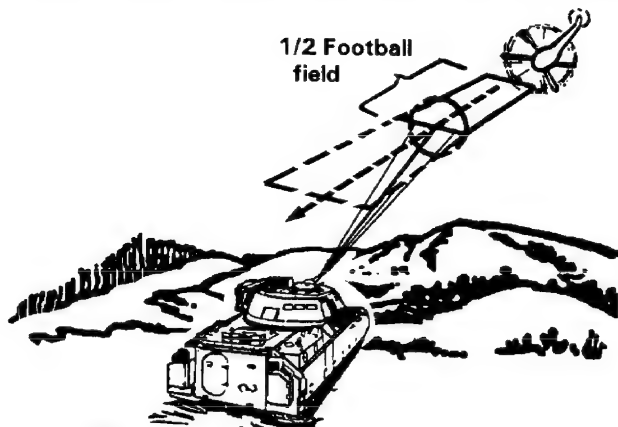


Figure 7-34. Aim points.

TYPE AIRCRAFT	COURSE	AIM POINT
Jet	Crossing	Two football fields in front of nose
Jet	Overhead	Two football fields in front of nose
Jet	Directly at you	Slightly above aircraft nose
Helicopter	Crossing	One-half football field in front of nose
Helicopter	Hovering	Slightly above helicopter body
Helicopter	Directly at you	Slightly above helicopter body

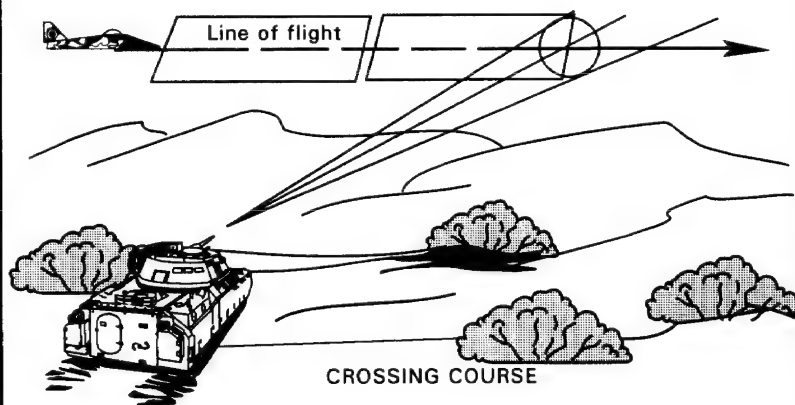


Figure 7-35. Selecting aim points.

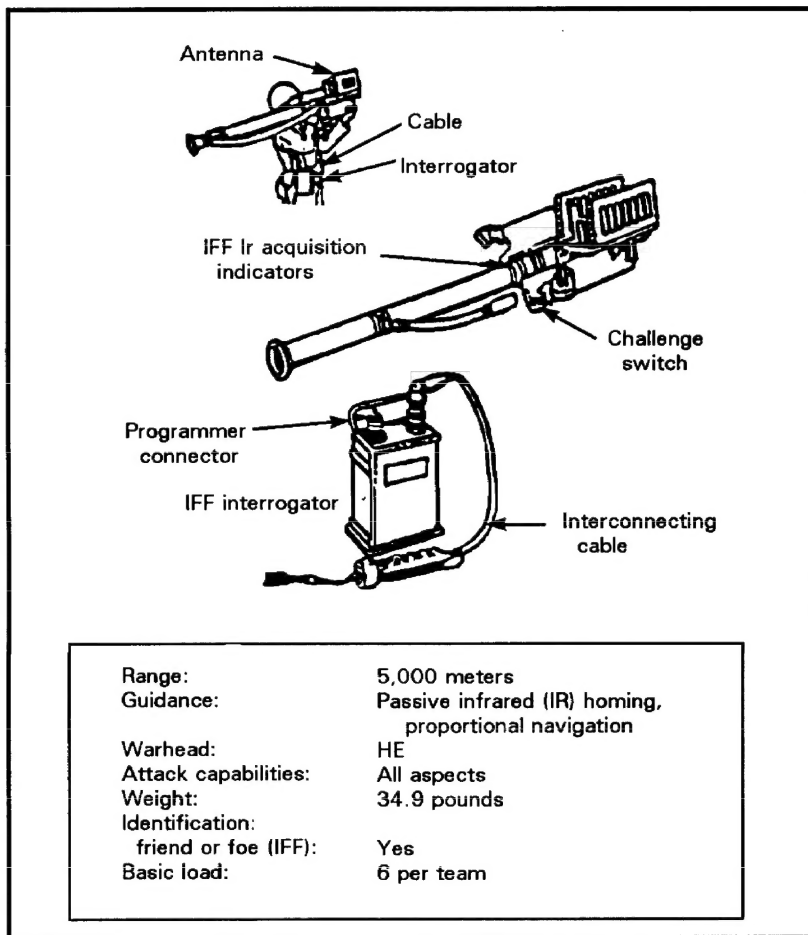


Figure 7-36. Stinger air defense system.

Section V. AIR SUPPORT

CLOSE AIR SUPPORT

CAS is provided by the Air Force. It can be employed to destroy large enemy armor formations. CAS strikes can be either preplanned (at battalion or squadron level) or requested on an immediate-need basis through the battalion forward air controller (FAC). The FAC on the ground or in the air acts as a link between the ground element and the CAS aircraft.

Army air cavalry is best equipped to coordinate with Air Force assets in joint air attack team (JAAT) and attack helicopter operations. The air cavalry can see the battlefield and the target better than ground forces can, and it has the radio equipment needed to talk to Air Force aircraft. The attack aircraft organic to air cavalry can assist CAS aircraft in suppressing the enemy ADA threat.

Although planning normally begins at battalion/squadron level, the scout platoon may be called upon to provide information for CAS employment. Scouts should familiarize themselves with the procedures to call for CAS. If CAS assets are working for their battalion, the scouts should provide suppressive fires on any known or suspected enemy ADA locations.

MARKING FRIENDLY POSITIONS

Friendly positions should always be marked during close air strikes. Marking is almost always necessary when friendly troops are within 300 meters of the target. Resources for marking positions include the following:

- Smoke. The smoke grenade is the most commonly used marker, but it has limitations. Wind may cause smoke to drift above trees, and some colors can blend with the background. Violet or white smoke shows up well with most backgrounds.
- Flares. Rocket or 40-mm flares are good for attracting attention at night; they are sometimes effective during the day.
- Mirrors. Signal mirrors are probably the best ground-to-air devices for attracting attention. If the sun is shining and the operator is skillful, pilots can see a mirror flash miles away. VS- 17 signal panels are also good visual references for pilots.
- Lights. Pocket-size, battery-powered strobe lights produce brilliant white or blue flashes at about 1 1/2-second intervals. The flash is visible at night for 1 to 3 miles. Vehicle lights, such as an unshielded red taillight, are visible to a pilot for several miles at night. Chemical glow lights can be used to mark friendly positions. Another technique that can be used at night is to tie an infrared (IR) or green chemical light on a 10-foot string. When aircraft are in the area, a scout can swing the rope in a circular motion to mark the location.

Section VI. GROUND SURVEILLANCE RADAR

GSR teams can augment the surveillance capability of scout platoons by detecting targets and providing accurate range and azimuth readings to enemy locations during limited visibility conditions. A team consists of three soldiers, one AN/PPS-5 radar unit, and an armored personnel carrier (APC) or HMMWV.

For combat operations, GSR teams are usually attached to battalions and squadrons. The teams may be attached or OPCON to companies/troops or scout platoons for specific missions. When GSR is attached or OPCON to a scout platoon, the platoon leader must plan its employment. He should work with the intelligence officer to position GSR assets in conjunction with scout OPs to provide local security and protection.

CAPABILITIES AND LIMITATIONS

GSR teams provide mobile, all-weather battlefield surveillance. When employed in pairs, they can provide observation from a given vantage point 24 hours a day.

The AN/PPS-5 has a line-of-sight range of 10,000 meters against vehicles and 6,000 meters against personnel. It can detect targets through light camouflage, smoke, haze, light snow and rain, and darkness. Foliage and heavy rain and snow seriously restrict its radar detection capability.

GSR is designed to detect targets moving against a background. It is generally ineffective against an air target unless the aircraft is flying close to the ground. It is vulnerable to enemy direction-finding and jamming equipment. The GSR team is normally equipped with a single radio. If forward with the scouts, it should send all reports to the scout platoon leader to be passed higher.

EMPLOYMENT

The GSR team should be assigned a specific sector of surveillance and frequency of coverage. Because the enemy can detect radar signals, however,

GSR cannot be used for continuous surveillance. The tasks assigned to GSR teams in their surveillance mission may include the following:

- Searching avenues of approach or possible enemy positions on a scheduled or random basis to determine the location, size, and composition of enemy forces and the nature of their activity.
- Monitoring point targets such as bridges, defiles, or road junctions and reporting quantity, type, and direction of enemy vehicles and personnel moving through the target area.
- Extending the observation capabilities of the scouts by enabling them to survey distant points and areas of special interest.
- Vectoring patrols to keep them oriented during periods of limited visibility.

GSR must be positioned in an area that is free of ground clutter such as trees, thick vegetation, and buildings and that affords long-range observation and a wide field of view. Normally, the team will be assigned a general area, and the GSR team leader will select the specific position. To avoid enemy suppressive fires, the team should be prepared for rapid displacement and have several alternate positions selected and reconnoitered.

During reconnaissance, GSR is best employed to the flanks of the scout platoon or oriented on potential enemy locations. Since reconnaissance is a moving operation, the GSR teams will have to move as necessary to support the scouts.

During security operations, GSR teams can be used to provide redundancy in surveillance of NAIs and to add depth to the scout screen line by augmenting scout OPs.